

Meeting: 1003, Atlanta, Georgia, AMS CP 1, AMS Contributed Paper Session

1003-92-658 **Azmy S Ackleh** (ackleh@louisiana.edu), Department of Mathematics, University of Louisiana at Lafayette, Lafayette, LA 70504, **Keng Deng** (deng@louisiana.edu), Department of Mathematics, University of Louisiana at Lafayette, Lafayette, LA 70504, and **Xubo Wang*** (xbw0554@louisiana.edu), University of Louisiana at Lafayette, PO Box 40881, Lafayette, LA 70504. *Competitive Exclusion and Coexistence for a Quasilinear Size-Structured Population Model.*

We present a quasilinear size-structured model which describes the dynamics of a population with n competing ecotypes. We assume that the vital rates of each subpopulation depend on the total population due to competition. We provide conditions on the individual rates which guarantee competitive exclusion in the case of closed reproduction (offspring always belongs to the same ecotype as the parent). In particular, our results suggest that the ratio of the reproduction and mortality rates is a good measure for determining the winner ecotype. Meanwhile, we show that in the case of open reproduction all ecotypes coexist. (Received September 26, 2004)